



# The *BEAGLE*

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### *DAMP*A POCILLOPORAEFORMIS, A NEW GENUS AND A NEW SPECIES OF OCTOCORALLIA (COELENTERATA) FROM AUSTRALIA

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#### ABSTRACT

*Dampia pocilloporaeformis*, a new genus and species of the Alcyonaccan family Alcyoniidae, is described, based upon a specimen from the north of Western Australia. The material has affinities to the genus *Sinularia* May, as demonstrated by a comparison with a specimen of *Sinularia* from Sri Lanka.

#### INTRODUCTION

The unusual specimen that is the main subject of this paper was noticed several years ago amongst the varied material of the Western Australian Museum. The colony has the basic characteristics of the genus *Sinularia* but differs by the development of calicular structures on the surface of the polypary.

In the collection of the Northern Territory Museum is a fragment of a colony

from Sri Lanka that appears to be closely related to the Western Australian specimen. Unfortunately, no further material of a comparable nature has been forthcoming.

#### Abbreviations:

W.A.M. — Western Australian Museum, Perth.

N.T.M. — Northern Territory Museum of Arts and Sciences.

## SYSTEMATIC ACCOUNT

Genus *DAMPPIA* gen. nov

Family — Alcyoniidae Lamouroux, 1812.

*Diagnosis* — Colony thickly encrusting with a basal portion devoid of polyps, distinctly differentiated from a lobed polyparium. Polyps monomorphic and fully retractile within calicular structures that are composed of large spindle-shaped sclerites and covered with a thin layer of coenenchyme filled with sclerites. Sclerites of the deeper coenenchyme large warty spindles, those of the surface layer small clubs. The type-species of the genus is *Dampia pocilloporaeformis* sp. nov.

*Dampia pocilloporaeformis* sp. nov.

(Figs. 1,2,4,5)

*Material* — Holotype W.A.M. 574.79, Dampier Archipelago, Western Australia. Collector unknown. Date of collection unknown.

*Description of the holotype* — The creamy-white specimen, which is hard and relatively inflexible, has apparently been torn from the edge of a larger, encrusting, colony. Its maximum height and width are 70 mm and its greatest thickness is 40 mm. Three sides of the fragment are devoid of polyps and represent part of the colonial stalk. The area is creased here and there both longitudinally and transversally. The areas without creases appear smooth but have the texture of extremely fine sandpaper. On the largest face there are two 5-6 mm oval patches where the fine surface layer is missing and large interior sclerites are exposed.

The upper and inner polyp-bearing surfaces are tightly folded into thick lobes, the largest of which are highly sinuous. Several of the lobes appear to have been formed initially from radial pleats in the margin of the polypary. Subsequent fusion of the undersides of these pleats has resulted in lobes with a furrow devoid of polyps extending along their outer edge (Fig. 1,

arrow). The lobes are about 7-10 mm thick and present a somewhat triangular profile.

The monomorphic polyps are retractile within calicular structures that cover the surfaces of the lobes and the areas between them. These calices are up to 3 mm high and 2 mm in width. Most stand vertical to the surface, but those toward the rim and the edges of the lobes tend to face obliquely outwards (Fig. 2). The largest calyces occur between the lobes. Fusion of adjacent calyces is rare in this area and most stand 2-3 mm apart. Proceeding toward the rim and outer edges of the lobes, the calyces become progressively smaller and closer together, and adjacent ones may coalesce. Some of the calyces in the summit area of the largest lobe are united in small clumps.

The calyces are formed of bundles of spindle-shaped sclerites of the same general type as those occurring in the deeper coenenchyme. Only the outlines of the spindles are visible as each calyx is covered by a continuation of the surrounding superficial coenenchyme.

The rim of each calyx is formed by the rounded extremities of 5-7 of the larger spindles and is therefore uneven. A shallow depression occurs in the summit of the calyces, where the polyps are completely retracted. Only rarely is a minute aperture visible.

The number and shape of the spindles forming the calyces is very variable (Fig. 4, a,b,c). One calyx examined had 13 heavily warty spindles with rounded ends, measuring 0.49 x 0.11 mm to 2.10 x 0.36 mm, 2 small spindles with cone-shaped prominences 0.86 x 0.16 mm and 0.83 x 0.18 mm, and 2 nearly smooth forms 0.41 x 0.07 mm and 0.30 x 0.07 mm. Another calyx had 34 spindles 0.38-1.59 mm in length, 6 with cones 0.26-0.39 mm, and 1 nearly smooth 0.61 mm long. The warts on the larger spindles tend to be aligned in transverse girdles.

The surface layer of the calyces and lobes contains clubs mostly 0.07-0.14 mm in length (Fig. 5 a-l). The majority have a narrow warty handle, a smooth neck zone and a head consisting of a whorl of 3 large lateral warts. Many have a low central wart nestled within the 3 lateral warts and tending to be obscured by them (arrowed Fig. 5, a,b,f,i, & j). Other forms are present where the whorl of 3 warts is scarcely discernable and a few have a completely irregular shape.

The interior of the lobes contains curved or straight warty spindles with rounded ends, up to 4.30 x 0.85 mm in length. Some of the spicules are bifurcated. Some short, plump irregularly warty forms up to 0.34 x 0.11 mm long also occur, and rarely some longer individuals to 0.72 mm that are ornamented with cones.

The surface of the basal zone contains clubs 0.07-0.16 mm in length, the majority being <0.13 mm. Some, with the heads quite distinct from the handles, resemble those of the lobes with the tendency for a low central wart and 3 large lateral warts. However, many are grossly warty and markedly cone-shaped (Fig. 5 m-v). Intermediates between these forms occur.

The interior of the base contains sclerites similar to those in the lobes (Fig. 4d-g); lengths to 3.85 mm have been recorded. They are distinctly separate but closely aligned in the colourless coenenchyme, more or less parallel to one another, and oriented in the general upward direction of the colonies apparent growth. Enlargements of the sculpturing of the basal spindles are shown in Figs. 4h and 4i.

The polyps are about 0.35 mm in diameter. The tentacles contain rods with large cone-shaped prominences (Fig. 4j-m). They measure up to 0.09 x 0.03 mm (warts included).

#### Comparative Account *Sinularia* sp.

*Material*—N.T.M. C1947, Mandaithivu,

Jaffna, Sri Lanka, 5 m, coll. S.R. Krishnarajah 22 February 1980.

*Remarks*—I include here the description of another Indian Ocean specimen, somewhat tentatively assigned to the genus *Sinularia*. The colony is small and imperfect, lacking basal parts, and its true identity will remain uncertain. It does, however, have a number of similarities to *D. pocilloporaeformis* and was at first suspected of being conspecific.

The specimen (Fig. 3) is apparently part of a lobe. The portion is 55 mm long, 20 mm wide and 6 mm thick, and it has the same unusual creamy-white colouring as the *Dampia* holotype.

Surface tissue covers only one end of the piece and occupies 32 mm of one side and 10 mm of the other. In this area are found small processes, obliquely angled to the surface, resembling in general appearance the calyces of *Dampia*. The processes are similarly formed by spindle-shaped sclerites. These sclerites, however, are smaller and far more numerous than those of the holotype. One of the processes contained 95 spindles. One of these spindles measured 1.9 mm in length while the remainder were 0.45-1.00 mm long.

For the most part the calyces of the *Dampia* holotype, except for the reduced forms on the edges of the polypary, contain a sufficient number of large spindles which, together, give the calyx its cylindrical shape. The small spindles within the surface processes of the Sri Lankan specimen do not provide such a rigid construction. Many can be seen obliquely angled beneath the covering surface tissue. The processes so formed tend to be apically domed; their summits are not concave as in the holotype. Closer examination reveals several small depressions randomly placed on the sides and summits of the processes indicating the positions of retracted polyps. These processes, which must be considered as



small coenenchymal lobes, are the only areas where polyps are found.

The sclerites of the surface layer are clubs of the same form as those in the *Dampia* holotype. They average only fractionally shorter and the handles are slightly more warty. The remainder of the specimen consists of spindles bound in coenenchymal tissue. The interior lobe spindles are stout, conspicuously smaller than those of the

holotype, and are aligned parallel to one another in the colourless mesogloea. They are tightly packed and almost touching. Although they can be up to 3.85 x 0.95 mm in length, individuals over 2.5 x 0.65 mm are not common.

Numerous white gonads are visible in the gastric cavities. Many of the largest, up to 0.35 mm in diameter are free while the smaller ones are attached to mesenteries.

## DISCUSSION

The general aspect of the holotype is remarkably reminiscent of the scleractinian coral *Pocillopora eydouxi* Ewards and Haime 1860. This is alluded to in the specific name. The spiculation of the specimen is identical to that of *Sinularia*. Within the genus *Sinularia*, however, only *S. faveolata* Verseveldt 1974 has any semblance of calicular structures. This is, however, because of very large spindle-shaped sclerites lying close to the surface of the lobes. There is no specialisation of these sclerites to form distinct projecting aggregations into which individual polyps can retract as seen in *Dampia*. The low calyx-like mounds in specimens of *S. dura* (Pratt) 1903, *S. brassica* May 1898 and *S. fungoides* Thomson and Henderson 1906, are solely the result of a thickening of the surface tissue.

It is considered preferably to erect a new genus for this material rather than extend the generic limits of *Sinularia* to allow its inclusion. The discovery of further material of a similar nature to the Sri Lankan specimen may result in *Dampia* becoming a synonym of *Sinularia*.

The generic name *Dampia* is derived from the name of the type-locality. As this archipelago was named after William Dampier the gender of the generic name is masculine.

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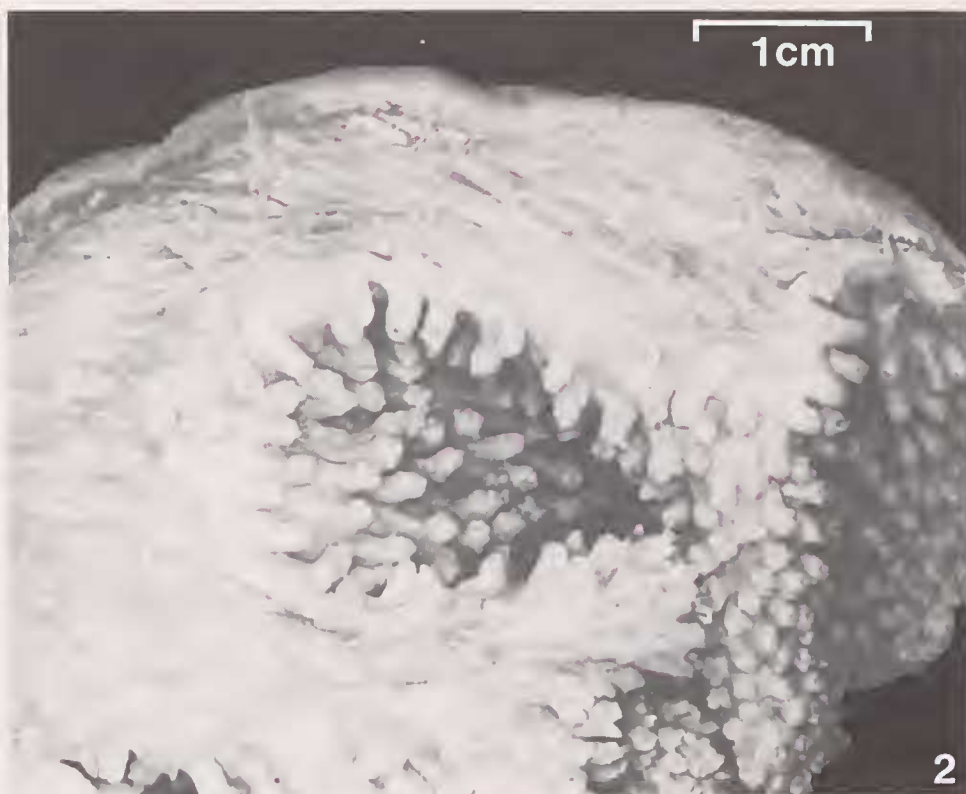


Fig. 2. *Dampia pocilloporaeformis*, Holotype.



Fig. 3. *Sinularia* sp., N.T.M. C1947., x1.



Fig. 1. *Dampia pocilloporaeformis*, gen. nov., sp. nov., W.A.M. 574.79, Holotype, x1.

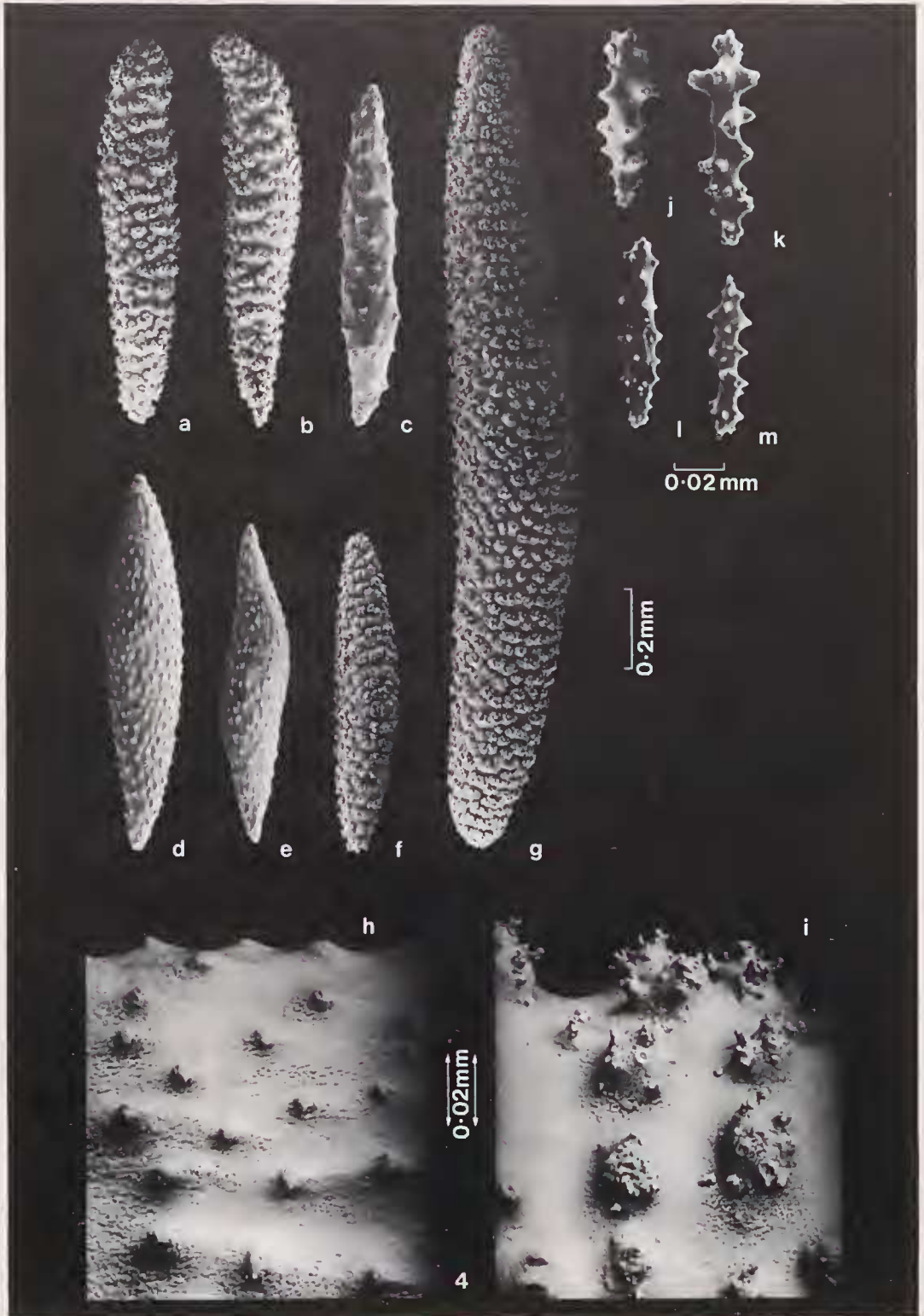


Fig. 4. *Dampia pocilloporaeformis*, gen. nov., sp. nov., a-c, sclerites from calicular structures; d-g, sclerites from base interior; h, i, sculpturing of basal spindles; j-m polyp sclerites.

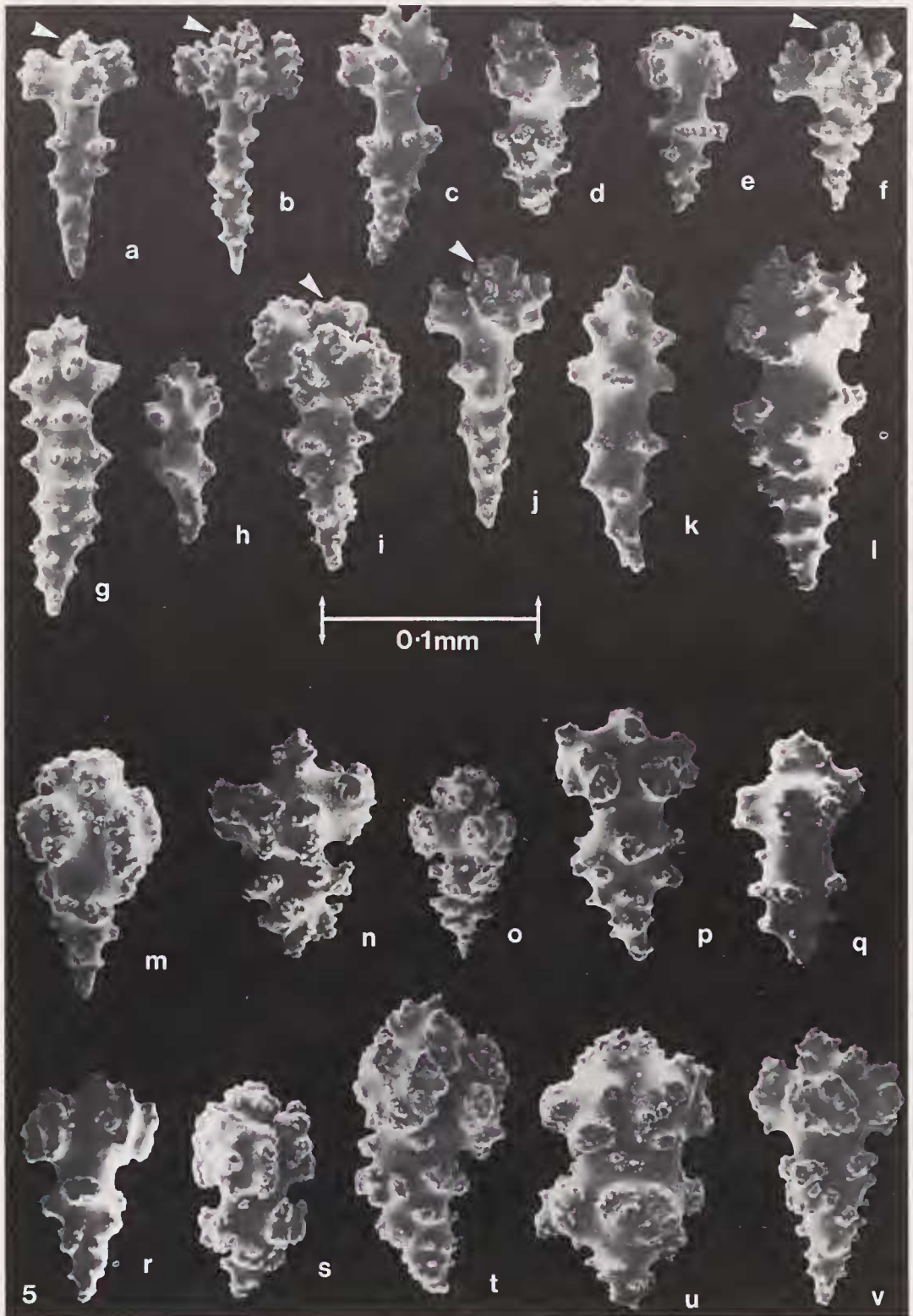


Fig. 5. *Dampia pocilloporaeformis*, gen. nov., sp. nov., a-l, sclerites from the surface of the polypary; m-v, sclerites from the surface of the base.



## RÉSUMÉ

Dans la famille Alcyoniidae un nouveau genre et une nouvelle espèce d'octocoralliaire sont établis pour un spécimen provenant de l'Archipel de Dampier, au nord de la côte de Western Australia. Le spécimen blanc a une ressemblance morphologique très marquée au Madréporaire *Pocillopora eydouxi*. Quant aux formes et aux locations de ses sclérites, le spécimen possède quelques caractéristiques du genre *Sinularia*. Les affinités avec ce genre sont démontrées par une comparaison avec un spécimen de *Sinularia* provenant de Sri Lanka. Le nouveau genre diffère de *Sinularia* par le développement de calices dressés sur la surface du polypaire.

## REFERENCES

- Crossland, C. 1952. Madreporaria, Hydrocorallinae, *Heliopora* and *Tubipora*. *Sci. Rep. Great Barrier Reef Exped. 1928-1929*, **6**: 112-114, pl. 1 fig. 2.
- May, W. 1898. Die von Dr Stuhlmann im Jahre 1889 gesammelten ostafrikanischen Alcyonaceen des Hamburger Museums, *Mitt. Naturhist. Mus. Hamburg*, **15** (2): 1-38.
- Pratt, E. M. 1903. The Alcyonaria of the Maldives II. The genera *Sarcophytum*, *Lobophytum*, *Sclerophytum*, and *Alcyonium*. *Fauna Geogr. Mald. Laccad. Archip.*, **2**(1): 528-530. pl. 31.
- Thomson, J. A. and Henderson, W. D. 1906. The marine fauna of Zanzibar and British East Africa, from the collections made by Cyril Crossland in the years 1901 and 1902. Alcyonaria. *Proc. Zool. Soc. London*, **1906**: 417-418.
- Veron, J. E. N. and Pichon, M. 1976. Scleractinia of Eastern Australia. 1. Families Thamnasteriidae, Astrocoeniidae, Pocilloporidae. *Aust. Inst. Mar. Sci., Mon. Ser.*, **1**: 52-56.
- Verseveldt, J. 1974. Octocorallia from New Caledonia, *Zool. Meded., Leiden*, **48**(12): 101-108, pls. 2, 3.
- 1980. A Revision of the Genus *Sinularia* May (Octocorallia, Alcyonacea). *Zool. Verhand., Leiden*, **179**: 1-128, figs. 1-68, pls. 1-38.